PRELIMINARY SERVICE MANUAL

ACT-R804/A

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8-80

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ALIGNMENT INSTRUCTIONS

Equipment Required

FM Signal Generator
Oscilloscope
AC VTVM capable of measuring 455 KHz

NOTE: During all steps of alignment, the squelch control should be in the position of minimum squelch action, (fully clockwise).

QUADRATURE DETECTOR

Program a channel for either High band, or Low band and install a crystal.

1. Connect oscilloscope to the junction of R157, C145 and C146.

2. ACCURATELY set the frequency of the signal generator to the center of the channel being used for alignment. Modulate signal generator with 1000 Hz, 3 KHz deviation. Connect generator output to antenna input.

3. Adjust signal generator output until all noise in the scope pattern just disappears.

4. Adjust L111 for maximum peak to peak amplitude while maintaining symmetry of detected signal.

IF ALIGNMENT

1. Connect AC VTVM to TP1. Set meter to a range that will permit reading 50 millivolts.

2. ACCURATELY set signal generator frequency to the center of the channel being used for alignment. Adjust signal generator output to obtain approximately 50 millivolt reading on VTVM.

3. Adjust L109 for maximum voltmeter reading. Adjust signal generator output to maintain 50 millivolt reading.

RF ALIGNMENT

UHF Band, UH Segment

1. Program a channel to UHF, (470-512 MHz), and install a crystal near 487 MHz.

2. Connect AC VTVM to TP1. Set meter to a range that will permit reading 50 millivolts.

3. ACCURATELY set signal generator frequency to the center of the channel being used for alignment. No modulation. Connect generator output to antenna input.

4. Pre-set the core of L112 flush with top of coil form.

5. Adjust core of L112 clockwise into coil form for SECOND peak. Adjust generator output to maintain approximately 50 millivolt reading on VTVM.

6. Adjust C119, C126 and C169, in that order, for maximum voltmeter reading. Adjust generator output to maintain 50 millivolt reading. Repeat adjustments until no furhter improvement can be made.

UL Segment

1. Program a channel to UHF, (450-470 MHz), and install a crystal near 460 MHz.

2. Set signal generator to the center of the channel being used for alignment. Adjust signal generator output to obtain a reading of approximately 50 millivolts on VTVM.

3. Adjust R167 for maximum reading on VTVM. Adjust generator output to maintain approximately 50 millivolt reading on VTVM.

AFC ALIGNMENT

1. Program a channel for UHF and install a crystal, (either segment).

2. Connect DC VTVM to the Junction of R165 and R177.

3. Remove signal generator from antenna input.

4. With no signal applied, adjust L111 for a reading of 3.8 volts on the VTVM. The proper setting should be within a turn of the position obtained in Quadrature Alignment.

HIGH BAND

1. Connect AC VTVM to TP1. Set meter to a range that will permit reading 50 millivolts.

2. Program a channel to high band and install a crystal near 159 MHz.

3. Set signal generator to the center of the channel being used for alignment. Connect generator output to the antenna input and adjust generator output to obtain approximately 50 millivolt reading on VTVM.

4. Adjust L104 and L106 for maximum reading on VTVM. Adjust signal generator output to maintain 50 millivolt reading. Repeat adjustments until no further improvement can be made.

LOW BAND

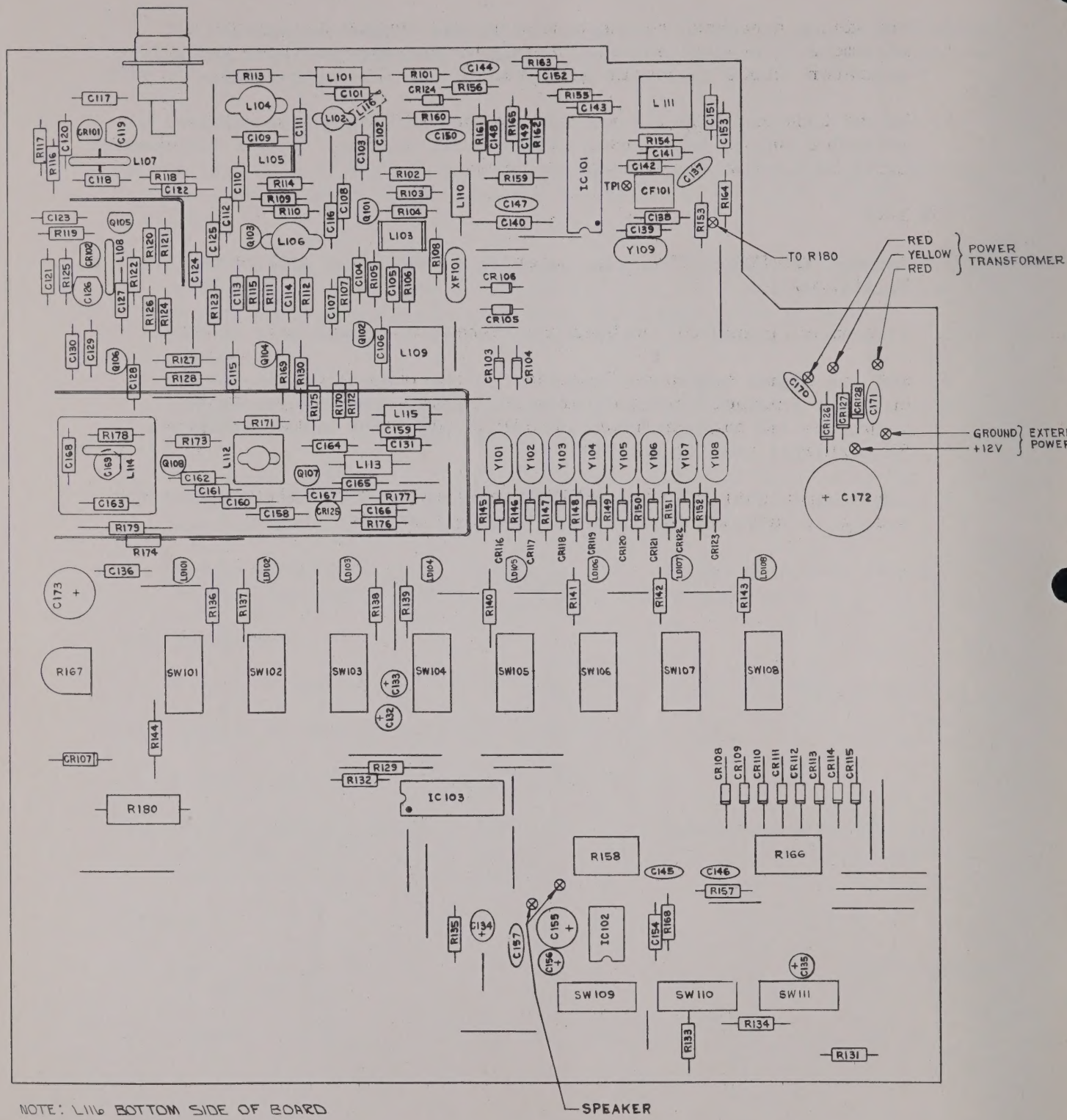
1. Connect AC VTVM to TP1. Set meter to a range that will permit reading 50 millivolts.

2. Program a channel to low band and install a crystal near 34 MHz.

3. Set the signal generator frequency to the image frequency of the channel, (channel frequency plus 21.4 MHz). Connect generator output to the antenna input and adjust generator output to obtain 50 millivolt reading on VTVM.

4. Adjust trap coil L102 for MINIMUM reading on VTVM. Adjust generator output to maintain 50 millivolt reading on VTVM.

RECEIVER BOARD 700-586 D



NOTE: L116 BOTTOM SIDE OF BOARD

VOLTAGES

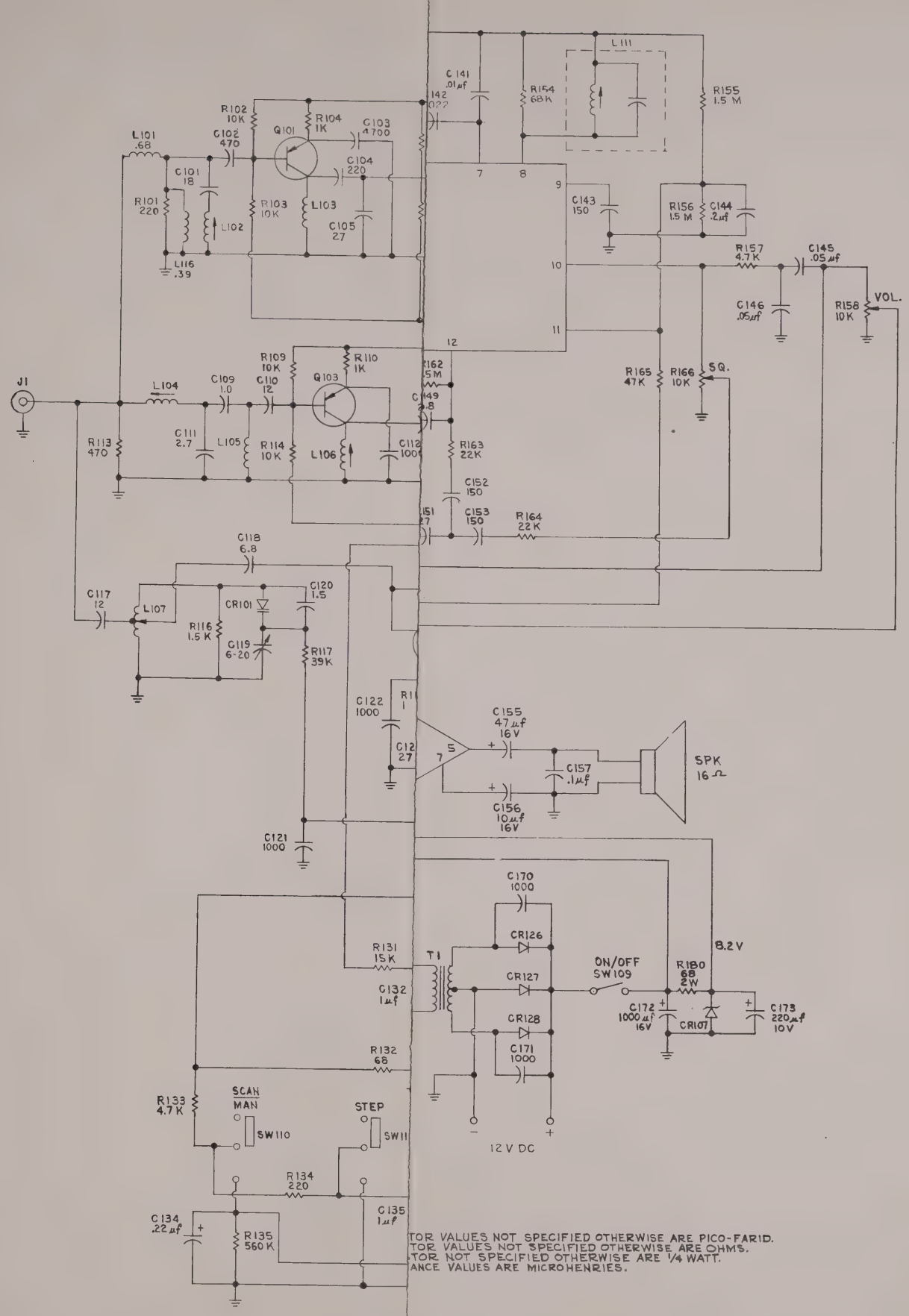
Voltages taken with Digital Voltmeter. Unit locked on Channel 1, No Signal.

	E	B	C
Q101	5.5	4.7	0 (Low Band)
Q102	7.6	6.8	0 (Low Band)
Q103	5.5	4.7	0 (High Band)
Q104	7.6	6.9	0 (High Band)
Q105	7.9	7.1	0 (UHF)
Q106	7.0	6.2	0 (UHF)
Q107	0	5.0	8.1 (UHF)
Q108	8.1	7.7	0 (UHF)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC101	8.5	8.0	7.8	8.5	1.0	1.0	1.0	8.5	5.7	5.1	8.2	2.3	2.4	0.7	0	0	0	2.0

	1	2	3	4	5	6	7	8
IC102	1.4	0	0	0	7.9	14.8	7.6	1.4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC103	8.6	0.1	8.4	7.1	7.1	7.1	7.0	0	7.0	8.4	0.3	0.3	7.7	6.3	0	8.3



TOR VALUES NOT SPECIFIED OTHERWISE ARE PICO-FARID.
TOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS.
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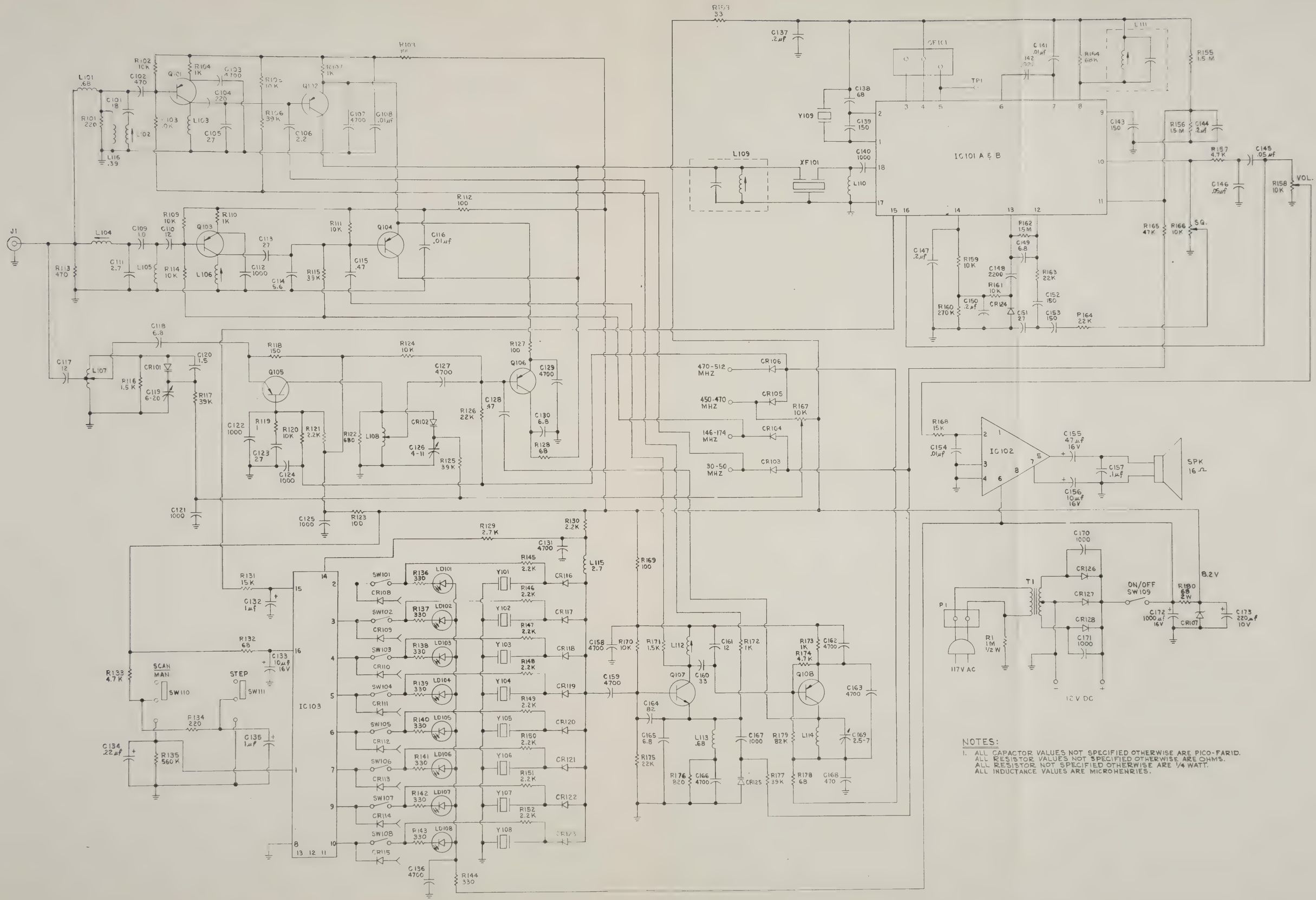
ANCE VALUES ARE MICROHENRIES.



NOTES:

1. ALL CAPACTOR VALUES NOT SPECIFIED OTHERWISE ARE PICO-FARID.
   ALL RESISTOR VALUES NOT SPECIFIED OTHERWISE ARE OHMS.
   ALL RESISTOR NOT SPECIFIED OTHERWISE ARE 1/4 WATT.
   ALL INDUCTANCE VALUES ARE MICROHENRIES.

ACT-R804 PARTS LIST

Item No.	Description	Part No.
	TRANSISTORS	
Q101, 102, 103, 104, Q105, 106, 108	PNP	4801-0000-026
Q107	NPN	4801-0000-100
	INTEGRATED CIRCUITS	
IC101	IF	3130-6056-500
IC102	Audio	3130-3167-916
IC103	Scan	3130-5127-900
	DIODES	
CR101, 102	Varactor	4809-0000-004
CR103, 104, 105, 106, CR108, 109, 110, 111, CR112, 113, 114, 115, CR124	Silicon	4805-1241-200
CR107	Zener, 8.2V	4808-0000-009
CR116, 117, 118, 119, CR120, 121, 122, 123	Pin	4815-3296-601
CR125	Varactor	4809-0000-010
CR126, 127, 128	Silicon, Rect.	4806-0000-004
	LIGHT EMITTING DIODES	
LD101, 102, 103, 104, LD105, 106, 107, 108	Red	4810-1326-800
	COILS	
L101	RF Choke	1803-3293-801
L102	Trap	1800-5100-405
L103	RF Choke	1803-5125-911
L104	Ant, HI Band	1800-3152-032
L105	RF Choke	1803-5125-910
L106	RF, HI Band	1800-3152-002
L107	Ant, UHF	1800-3255-201

ACT-R804 PARTS LIST

Item No.	Description	Part No.
	COILS CONTINUED	
L108	RF, UHF	1800-3160-005
L109	IF, 10.7 MHz	1800-6055-901
L110	RF Choke	1803-3268-216
L111	Quadrature	1800-6055-801
L112	Oscillator	1800-5100-527
L113	RF Choke	1803-3268-215
L114	Multiplier, UHF	1800-3160-003
L115	RF Choke	1803-3293-804
	CAPACITORS	
C119	Trimmer, 6-20 PF	1517-3295-303
C126	Trimmer, 4-11 PF	1517-3295-302
C169	Trimmer, 2.5-7 PF	1517-3295-301
	RESISTORS	
R158	10K, Vol.	4751-3278-102
R166	10K, Squelch	4751-3278-101
R167	10K, HI Band Tuning	4751-0103-001
	CRYSTALS AND FILTERS	
Y109	Crystal, Second L.O., 10.245 MHz	2301-3151-601
XF101	Filter, Crystal, 10.7 MHz	2705-3232-200
CF101	Filter, Ceramic, 455 KHz	2700-3209-500
	MISCELLANEOUS ELECTRICAL PARTS	
SPK-1	Speaker, 2 1/4 in., 16 Ohms	1301-3298-301
SPK-1	Alternate Part	1301-3213-402
T1	Power Transformer	5604-5151-900
SW101, 102, 103, 104, SW105, 106, 107, 108, SW109, 110	Switch, Slide, SPDT	5113-5135-204

ACT-R804 PARTS LIST

Item No.	Description	Part No.
	MISCELLANEOUS ELECTRICAL PARTS CONTINUED	
SW111	Switch, Slide, SPDT, (Step)	5113-5140-602
	Antenna, Telescope	1201-5108-801
	Power Cord, AC	6041-3215-900
	CABINET PARTS - 804	
	Knob, Vol. & Sq.	2402-6065-901
	Inlay, Chan. Sel.	2509-6066-101
	Inlay, Function Sw.	2509-6066-001
	Front Panel	1411-7059-202
	Case Bottom	1411-7059-001
	Case Top	1411-7059-101
	Door, Crystal Access	1411-7059-301
	Foot, Rubber	1402-3291-201
	CABINET PARTS - 804A	
	Knob, Vol. & Sq.	2402-6065-902
	Inlay, Chan. Sel.	2509-6066-102
	Inlay, Function Sw.	2509-6066-002
	Front Panel	1411-7059-203
	Case Bottom	1411-7059-002
	Case Top	1411-7059-102
	Door, Crystal Access	1411-7059-302
	Foot, Rubber	1402-3291-204